The MAC Flyer

FEBRUARY 1981

KC-10A Extender . . . page 16

The MAC Flyer

MILITARY AIRLIFT COMMAND

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For Greater Safety and Efficiency in MAC Air Operations.

MACRP 127-5 February 1981 VOL XXVIII NO. 2

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The MAC Flyer is published by the Directorate of Safety, Military Airlift Command, and is authorized until 24 March 1982, unless authorized to continue before that date. The contents are informative and not regulatory or directive. All names of people and places in mishap stories are fictitious; photos of aircraft in mishap stories are representative and not necessarily of the airplane involved. No information in any article may be construed as incriminating under Article 31, UCMJ.

Contributions, comments and criticisms are welcome. Write: *The MAC Flyer*, HQ MAC/IGFE, Scott AFB, IL 62225; or call 618-256-3534, or autovon, 638-3534. The editor reserves the right to change manuscripts to improve them or correct technical errors.

Subscriptions are available from: The Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Price $1.30 per copy, $15.00 per year (foreign address: $1.65 per copy, $18.75 per year). Changes of address for subscription mailing should be sent to GPO; give old and new address, including zip codes. MAC units establish requirements for this magazine through their publication distributor (DAPD). Other U.S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC aircrew members, and one for every twenty MAC support personnel.

Distribution F, X; OPR: HQ MAC/IGFE

ISSN 0024—788X

Never before published instructions on . . .

How to Win

the 1981 MAC Flying Safety Writing Contest

For the last few months we've been trying to coax and cajole you into entering the 1981 MAC Flying Safety Writing Contest. We've appealed to higher and lower human motivators ranging from saving lives to winning prizes. We've even passed on helpful hints on how to write for the *Flyer*. This time we're not going to encourage you to enter for any high-sounding reason, or even just to get the colorful C.R. Terror T-shirt and the free one-year subscription to *TMF*. We're going to break with tradition and tell you how to be a contest winner.

First, you should know the criteria your entry is evaluated on and who does the judging. Here are the categories the judges use to rate every article:

- Flying safety message
- Reader interest
- Originality and unique approach
- Quality of writing
- Overall impact

Giving up to 10 points for each category, the judges have historically awarded scores of over 35 to every winning entry.

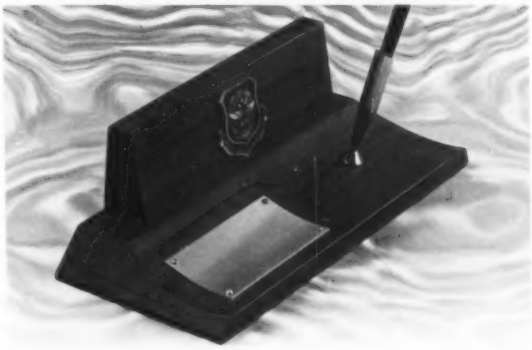
The contest is judged by the three military editors, one or more officers from the Flight Safety Division, and the Director of Safety. This gives us a range of rank and experience roughly similar to the spectrum of MAC crewmembers in our audience.

Looking over the last two contests, the most frequent type of prize-winning article was a fiction story based on a real event, usually a mishap, with the names and places changed to protect the not-so-innocent. Good poems also do well.

All the entries are judged on their merits alone and the names of the authors are not known until after the winning articles are chosen. Just for the record, most of our entries come from company-grade Air Force officers, and not surprisingly, so do most of the winners. However, every category of entrant has been represented in the last 38 winning articles from ARF NCOs and officers to civilians not associated with the Air Force, to foreign-national officers. So when we say anybody can win, we *are* sincere, even though there are some restrictions on who we can send the wood-grain goodies to.

Another point worth mentioning is that nearly every winning article was submitted in the format required by the rules (see the fine print below).

So now you know who judges the contest and what they look for. Also, we've given you a good idea of the kind of articles that most frequently, but not always win, place, or show. The only thing left for you to do is apply this knowledge to your entry and then get it into the mail soon. The contest closes 31 March 1981. We can't absolutely guarantee results, but if you follow the guidelines we'll give you a better-than-the-MAC-average chance to win.



The Rules

The 1981 MAC Flying Safety Writing Contest is conducted according to MACR 900-3 and the following rules. All entires must be original, unpublished, and postmarked no later than 31 March 1981. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages); poetry should be about 75 to 100 lines. Entries must contain an aviation safety message. Manuscripts must be double-space typed and submitted in two copies. The article will be identified by title only, and a coversheet will be attached showing the author's name, address, phone number and unit. Also, the coversheet should contain a brief autobiography.

The contest is open to anyone, and entries qualifying under the above rules earn their author a free C.R. Terror T-shirt and a one-year subscription to *The MAC Flyer*. However, contest prizes (desk sets and plaques) may only be awarded to military and civilian employees of the DAF or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a Special Category. All winning stories will be published in *The MAC Flyer*. Entries should be addressed to: Writing Contest
HQ MAC/IGFE
Scott AFB, IL 62225

FLYERS ANONYMOUS

The saga of a gross navigation error.

The setting: Far East. The squadron was in the final month of a very demanding WestPac deployment. Crew seven, my crew, had risen early to begin our 0200 preflight. The mission for the day was a routine maritime surveillance flight. Our track would cover a large ocean search area bounded by foreign land masses. I was especially alert to the need for precision navigation in order to avoid a violation of any foreign air space.

Preflight proceeded smoothly, with no unusual events. After reviewing the aircraft maintenance logs and noting only minor discrepancies, we proceeded to the tactical brief. Weather for the northern area of our track was forecast to go from bad to worse during our on-station time. Mid-December storms in this area are usually brutal, and this one was no exception.

With the electrical storms and low ceiling rendering loran and celestial navigation useless, I had to anticipate using only radar and, possibly, ADF for outside fixing information. I wasn't worried, because the P-3C has dual inertials and a new computer that should keep me in the ball park. What could possibly go wrong?. . . Plenty!

At 0600, the mighty Orion revved up the engines and we started takeoff roll. The navigation system was updated, and I noticed the inertial positions had drifted about 2 miles since the initial alignment in the chocks. This was excessive and cautioned me to keep a watchful eye on the INS. Immediately after takeoff, we began experiencing problems with the navigation radios. Unable to determine if the difficulties were due to our equipment or the stations themselves, we elected to continue the mission and rely on the nav computer for steering commands. During the 45-minute transit to our on station point, we were able to obtain one fix crossing the VOR, but had to miss our last check fix prior to going "feet wet" because of weather avoidance. I had been counting on one final update of the nav systems, because I had been busy preparing tactical messages and conducting post-takeoff systems checks and had missed our only VOR station passage. The mission commander, however, had noted a 7 nm difference in the computer position and the VOR position.

We arrived at our on-station point as planned, and I checked in with the local center as we descended to the 5,000-foot on station altitude. As luck would have it, this altitude put us smack in the middle of some very unpleasant weather. It was now takeoff plus one hour, and I was still unable to obtain an accurate outside fix. There was still time to get a couple of radar fixes before the coastline slipped beyond our radar range, but the operator had stabilization problems with the radar and was unable to get a clear landmass identification. One by one, the possible outside fixing sources were eliminated. Loran and celestial were unusable because of weather. Radar, ADF, VOR, and tacan were down because of black box problems. At this point, I began to feel a little squirmy. I informed the mission commander of the problem, but maintained that it was not serious. An abort was considered, but not initiated. With the two inertial positions still tracking on top of each other, they appeared to be giving accurate information, and this helped relieve some of the anxiety. I was still concerned, however, with their drift at takeoff—but the flight continued on.

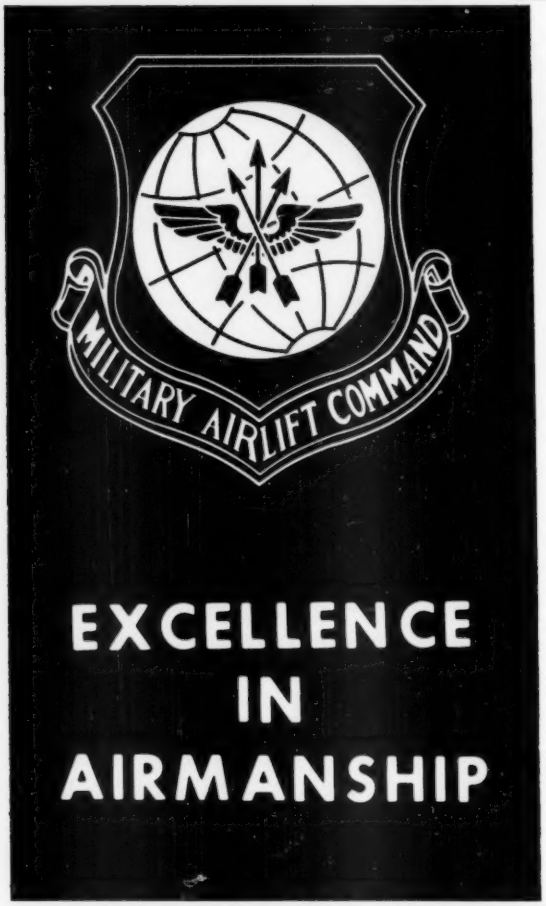
One and a half hours into the mission, the inertial readouts split and the decision was made to abort. An orbit point was es-

tablished, and an attempt to obtain an inbound IFR clearance from Center was initiated with negative results. In an effort to alleviate this problem, we began a slow spiraling climb. We were now two hours into the flight. Working frantically to obtain our position, I attempted a loran fix. The fix put the aircraft 130 miles from where the computer had us. This sent sheer panic through my mind, because 130 miles off course in that direction put us over a landmass in the vicinity of 14,000-foot mountain peaks. Unsure of the loran fix accuracy, I queried the radar operator, but received no reply. Upon checking the radar console, I found one sound asleep radar operator and land returns directly below the aircraft! I nearly jumped out of my skin and was barely able to resist the urge to strangle the radar operator on the spot. The flight station was immediately informed of our position, and communications were finally established with Center. By this time the Orion had reached FL170 and was clear of any mountains, but we will never know how close we came to hitting one! We continued homeward on course and made an uneventful recovery.

Some very valuable lessons can be learned by analysis of this near disaster. Foremost is: communicate. Mission success and crew safety depend upon crew coordination. This coordination is possible only through continuous and accurate communication. I was in error by not communicating my problems early on, and continued to be in error by minimizing their seriousness. Navigators are sometimes a forgotten and taken-for-granted entity. Their job is seldom commended and is sometimes only recognized in cases of gross error. As a result, many navigators have a reluctance to admit they are having problems, much less admit they are lost. As a member of a flightcrew, however, you have an obligation—both morally and professionally—to keep that crew informed of any problems you may be having.

The second lesson learned is: Don't be too eager to accept internally generated position data as gospel. Reliance on inertials can lead you down the primrose path. And, if you are not careful or lucky, you may not have a chance to recover. Be a systems navigator, use everything at your disposal, practice your basic nav skills, and stay prepared for the day when you find yourself up the creek without a fix. If it hasn't happened yet, that doesn't mean it won't, as I found out.

—Adapted from *Approach*



Left to right: Capt Louis J. Appelhans, IAC; Capt Allan R.Wallinder, AC; and SSgt William D. Roberts, FE.

Captain Appelhans and crew from the 21 TAS were flying their C-130E on an upgrade training mission at Taegu AB, Korea. While practicing a tactical downwind pattern under the supervision of Capt Appelhans, Capt Wallinder maneuvered the Hercules onto final approach less than a mile from the end of the runway. Suddenly, the number two engine flamed out for no apparent reason. The IP performed the engine-shutdown checklist, and Capt Wallinder continued the approach. A few seconds later, the number one engine quit. The crew was now on short final with a real two-engines-out-on-one-side situation. Capt Appelhans took control of the aircraft and Capt Wallinder accomplished the shut-down checklist items for the left outboard engine. The AC landed the aircraft while the flight engineer, SSgt Roberts, finished the clean-up items required after shutting down the engines in flight. With both left-hand engines out, the utility hydraulic system was unpowered, depriving the crew of nosewheel steering and normal brakes. The pilot kept the Herk on the runway centerline by using differential power and differential braking with the emergency system.

Maintenance investigation revealed several improperly operating components in the engines' temperature-datum and negative-torque systems. Through skillful airmanship, prompt analysis of the situation, and excellent crew coordination, the C-130 crew prevented a serious mishap and possible loss of life.

Captain Cook and crew from Detachment 14, 67 ARRS, were practicing water hoist training over the North Atlantic near Keflavik Naval Station, Iceland. With their HH-3E hovering at 40 feet, the crew had just completed a live hoist recovery when they heard a loud popping noise and felt an unusually strong vibration. Capt Cook, instructor pilot and aircraft commander, immediately took control of the Jolly Green and lowered the nose in an attempt to gain translational lift and prevent impacting the water. By the time the copilot, Capt Kendall, completed the boldface items for single-engine failure, the helicopter was about 100 yards from shore and only 30 feet above the cold ocean. Identifying the problem as a number one engine compressor stall, Capt Cook instructed SSgt Luke to complete the engine shutdown. In the rear of the H-3, SSgt Straight made sure all passengers and equipment were secure for landing.

As they approached the shoreline, Capt Kendall spotted a set of powerlines and pointed them out to the pilot. Capt Cook raised the nose and

lowered the collective slightly, and the Jolly Green hopped over the wires. This flaring maneuver caused the rotor rpm to increase to a more normal 96%, but forward speed decreased slightly. Capt Cook was able to maintain altitude, airspeed and rpm within normal limits, and elected to fly the remaining two miles to Keflavik, where he landed safely. The helicopter crew's quick and effective handling of this emergency was decisive in saving the aircraft, passengers and crew.

Left to right: SSgt Chadwick L. Straight, FE; SSgt David J. Luke, IFE; Capt Phillip L. Kendall, CP; Capt Dale J. Cook, FEAC.

Captain Baggett and crew from the 374 TAW, have the distinction of being the first individuals to receive the Excellence in Airmanship award for a life-saving episode not directly involving a malfunction aboard the aircraft they were flying. There is no doubt, however, that this crew's courageous actions helped save seven lives, including a foreign dignitary and a U.S. Navy Lieutenant JG.

While enroute to Andersen AFB, Guam, from the west the Hercules crew was asked to assist in a search for a lost Beach-18. Originally destined for Yap, the twin-engine plane was reportedly running short of fuel somewhere west of Guam. Reversing course toward Yap, the airlift crew soon made contact with the Beachcraft. Since ditching appeared inevitable, the C-130 crew discussed ditching procedures with the Beachcraft pilot for about an hour and finally "talked him down" into the water. After thirty minutes of searching for the downed aircraft, Captain Baggett was forced to return to Yap for fuel.

At the same time, Typhoon Joe was kicking up numerous thunderstorms close to the ditched aircraft and its seven survivors. At 1900 hours Yap time, the Hercules took off for another five-and-one-half hours of low-level night search. Before being forced to land at Anderson AFB, because of bad weather and low fuel, Captain Baggett and crew were able to narrow the possible crash location down to a 10-mile area of strong probability.

The next day, Capt Baggett checked on the progress of the search and learned that a Navy P-3 was out searching for the survivors, but that it would have to return by midafternoon, and no aircraft was available to replace it. Accepting minimum crew rest, the Hercules crew volunteered to try and take up where the Orion would leave off. Departing Guam in the afternoon, the C-130 rendezvoused with the P-3 about 1500 hours local, and started a joint search. The Navy crew spotted the survivors a half hour later and the USAF crew arrived on the scene about one minute after that. Low on gas, the Orion returned to home base.

Using modified procedures and improvised equipment, Capt Baggett's crew airdropped a 20-man liferaft, fresh water and survival equipment. They also established radio contact with the survivors and instructed the civilians on how to operate the unfamiliar USAF equipment.

Despite inclement weather, the Hercules crew stayed on station with the survivors and helped them through their night sea survival experience. By remaining essentially over the downed Beachcraft, they were able to vector the Coast Guard cutter *Basswood* to the ditching site for the recovery. All the survivors were brought aboard in good spirits and with only two minor injuries.

Voluntarily deviating from an airlift mission, the MAC crew had flown into the fringes of a powerful typhoon to help save the lives of seven downed air travelers. Rescue was not their primary mission (they are part of a tactical airlift squadron), yet they performed this job with professionalism and safety worthy of the most seasoned rescuers.

Left to right standing: SSgt Perry J. Clemons, LM; 1Lt John A. Phaneuf, CP; Capt Larry K. Baggett, IAC; 2Lt Jarvis E. Brown, Nav. Kneeling: A1C Juan E. Madurkay, Crew Chief; TSgt Richard H. Webb, FE.

Mishap with a Moral

Late Takeover

It has long been recognized by aviation safety workers that the attribution of an accident or incident to "pilot error" leaves unanswered the question of *why* the error was committed.

Human Factors in Aircraft Operations,
Ames Research Center, NASA

With the premission briefing complete, the instructor pilot and his two students made their way out to the UH-1N helicopter in preparation for a three-hour training flight. They were scheduled to practice emergency procedures, including autorotations, in addition to normal transition maneuvers at an auxiliary field a few miles away from home base.

While the pilots completed their preflight duties, the instructor flight engineer went over the takeoff data and weight-and-balance computations with his three students. Soon the aircraft was all buttoned up and ready to go. The crew had the Huey's two engines started and the rotors up to speed in short order. Five minutes after takeoff, they were at the aux field. The student, who occupied the right seat, started out with a few normal approaches before the instructor gave him a number of simulated emergencies from the left seat, including single-engine work, prior to starting practice autorotation training.

The IP performed the first autorotation straight ahead as a demonstration and to check the aircraft's performance. He then turned over control to the student who made several additional straight ahead autorotations. After completing these, the instructor reviewed techniques for initiating the flare, because the student was starting it a little early, causing the airspeed to

bleed off sooner and at a higher altitude than desired. But considering the student's training level, he was doing fairly well and making satisfactory progress.

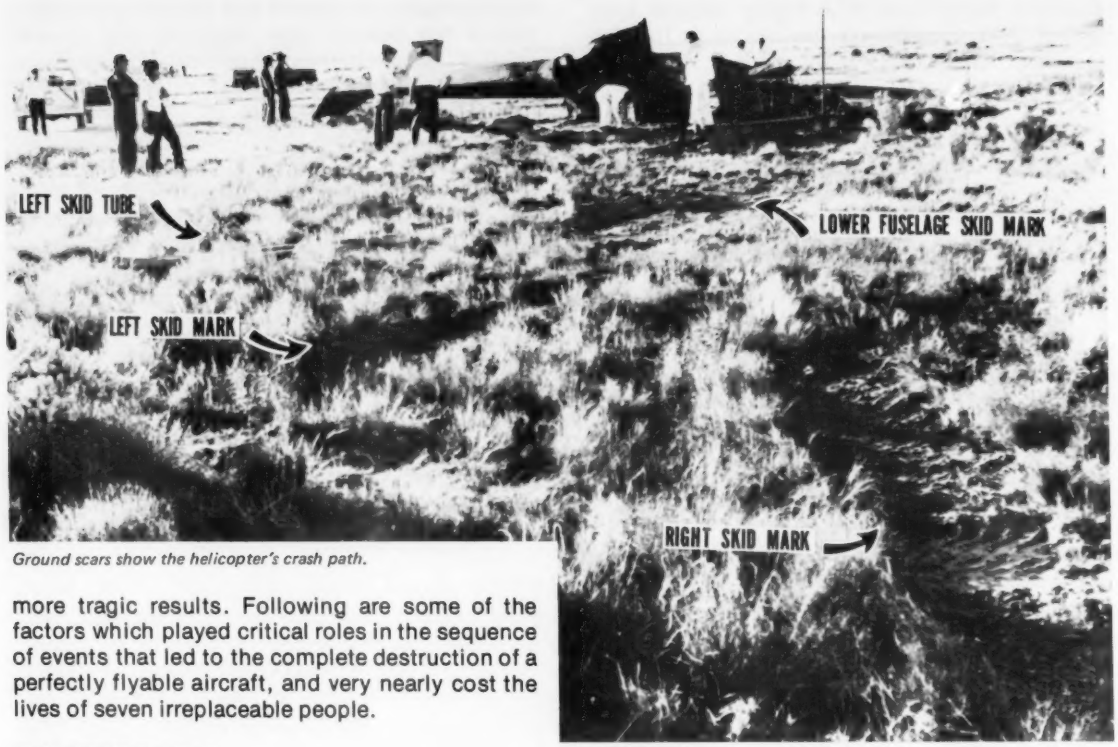
Before moving on to turning autorotations, the IP demonstrated a regular turning approach and discussed techniques for preventing the rotor rpm from increasing too much while in an autorotative turn—a common tendency during that maneuver. The student then tried a turning approach to get the feel for the control inputs that would be necessary. Having no problems with the turning approach, the right-seater brought the aircraft back around to base leg and the IP gave the go-ahead for him to initiate a right turning autorotation. A slightly late entry into the turn caused a small overshoot of the desired aim point. The student also tended to pump the collective pitch lever up and down causing the rpm to vary. But the fluctuations were all within normal rpm range. After the student recovered at a higher-than-normal altitude and with 15 to 20 knots forward airspeed the IP verbally critiqued his relatively high flare and rpm control. The right-seater again climbed to about 600 feet AGL and brought the Huey around to the same position on base leg for another try. He then lowered the collective, rolled the throttles to flight idle and banked the helicopter into a right descending turn. In trying to coordinate all the required control inputs the student pushed a little too hard on the right pedal, resulting in a slight right yaw and left sideslip. This contributed to another small overshoot. Because of a slightly higher-than-normal nose-up attitude caused by the application of aft cyclic, airspeed decreased from 95 knots at the beginning of the turn to around 60 to 70 knots as he rolled out at 300 feet. The left side-slip was still evident to the IP but the student was maintaining a 30-degree ground track correction back to the aim point. The rate of descent was high—about 2,500 feet per minute—and varied a little as the student attempted to control the rotor rpm by pulling up on the collective. This higher collective pitch setting caused a steady decay of the rotor rpm during the descent. Finally, when the low-rpm warning horn sounded, coupled with the still high rate of descent, the instructor took control of the aircraft. They were now only about 150 to 200 feet AGL and closing fast.

The IP rolled the throttles full open and bottomed the collective in an attempt to gain back precious rotor rpm before initiating the flare that would reduce the descent rate. This action, along with the flare, however, only increased rpm to approximately 94 percent and did not appreciably reduce the descent rate. Realizing that ground contact was imminent, he pulled maximum collective which lowered the rotor speed still further, slowed airspeed to about 20 knots and reduced the sink rate considerably. With such an abrupt control input, the aircraft yawed to the right and the instructor was unable to successfully counter it in time. A nose-high attitude produced by the exaggerated flare caused the helicopter's tail boom to strike the ground first, followed immediately by the tail rotor. Because they were still in a left sideslip the skids collapsed sideways when they hit, and the aircraft rolled over one and a quarter times before coming to rest on its left side. A fuel-fed fire started and the cabin was soon engulfed in flames. Fortunately all seven crewmembers escaped fast enough to avoid burns and suffered only bumps and bruises.

The tail skid, centered in this photo, hit first.

Discussion

It is clear that if the instructor had taken control of the aircraft a little earlier the mishap probably would not have occurred. But just pointing a finger at someone won't necessarily prevent a recurrence. What might prevent it, however, is figuring out *why* the IP waited as long as he did to take over. We also need to make sure we and those we fly with are aware of the conditions which, if not countered, are very likely to produce another accident like this one, perhaps with much



Ground scars show the helicopter's crash path.

more tragic results. Following are some of the factors which played critical roles in the sequence of events that led to the complete destruction of a perfectly flyable aircraft, and very nearly cost the lives of seven irreplaceable people.

Rotor RPM Control

Rotor rpm tends to increase during turning autorotations and if not monitored and controlled with up collective, can quickly overspeed. This, of course, becomes easier to control with practice but for a student unused to the aircraft it is a common problem. The IP emphasized the necessity for using collective to control rotor speed. The student over compensated in this case, but the instructor apparently felt they could recoup all of the lost rpm later on, possibly in the flare. As the rpm decayed, an additional problem may have been created. Loss of some tail rotor effectiveness caused by the low main rotor rpm may have accounted for at least part of the reason the IP was unable to straighten the aircraft and reduce the yaw and sideslip that caused it to roll over after ground contact.

Rate of Descent

With a field elevation in excess of 5,000 feet and a temperature above 85 degrees Fahrenheit, the density altitude was extremely high, contributing directly to the high rate of descent experienced by the pilots during the autorotation. The turning maneuver only increased the aircraft's descent rate through the relatively thin air.

Airspeed

To keep the helicopter from nosing over excessively when first entering the autorotation, the student used aft cyclic pressure. Because his airspeed was about 90 knots, this was a good technique. However, continued back pressure caused the airspeed to slowly bleed off. This, combined with the high rate of descent compressed the time they had to regain either airspeed or trade it for rotor rpm during the flare.

Conclusion

While these factors of rotor rpm, airspeed, and high rate of descent induced by high density altitude are by no means the only important problems facing the pilots, they do point up some of the common variables encountered every time we fly rotary-wing aircraft. Teaching others to control and coordinate these, along with numerous other inputs, is no easy task. But the parameters for safe flight, not to mention the laws of aerodynamics, are not waived just because a *student* is at the controls. Keeping this in mind may help you, whether you're an IP or not, to prevent a mishap that no one else in the cockpit is anticipating.

Fascinating reading for aviation buffs.

BOOK REVIEWS

by Major James G. Gibson II
Supervising Editor

Getting Off The Ground
by George Vecsey
and George C. Dade

It took a lot of gutsy and unique people to usher in the air age, and in this interesting book, 29 pioneers of powered flight tell about the parts they played. Compiled mostly from live interviews with venerable members of the Early Birds of Aviation, an exclusive club for pilots who made a solo before 1916, the chapters are filled with recollections of people you don't often find mentioned in the history books, but who performed impressive feats nonetheless, alongside the more legendary aviators. Here is a brief glimpse of some of the cast of characters. Elinor Smith, a teenager who flew under New York's East River bridge on a bet, and went on to become one of America's most celebrated female pilots before being eclipsed by Amelia Earhart. George Vaughn, America's leading WWI ace and a hero whose picture appeared on collectors cards just like sports notables of the day such as Babe Ruth and Ty Cobb. Tiny Broadwick, who started as a carnival parachutist, was the first woman to jump from an airplane, and made 2,000 descents during her career. Arthur Schreiber, who stowed away on a monoplane called *Yellow Bird* and became a hero even though he was an uninvited guest passenger of the first Frenchmen to make a North Atlantic crossing. The colorful roster also includes an octogenarian who has logged more official air miles than any pilot in history, several builders of early airplanes—including the Loughead Brothers (later known as Lockheed), one of the first federal aeronautical inspectors, a lady CAP pilot who chased German U-boats off the Atlantic Coast during WWII, and many others. This book makes fascinating fare for an aviation buff or anyone who likes to read about people who felt the sky was no limit when it came to trying something new, different and exciting.

Sole Survivor
by George H. Gay.

Here, told by the man who lived it, is the intriguing story of a young Navy torpedo plane pilot who gained a substantial amount of notoriety during World War II because he was the only flyer from his unit (Torpedo Squadron Eight) to survive the Battle of Midway.

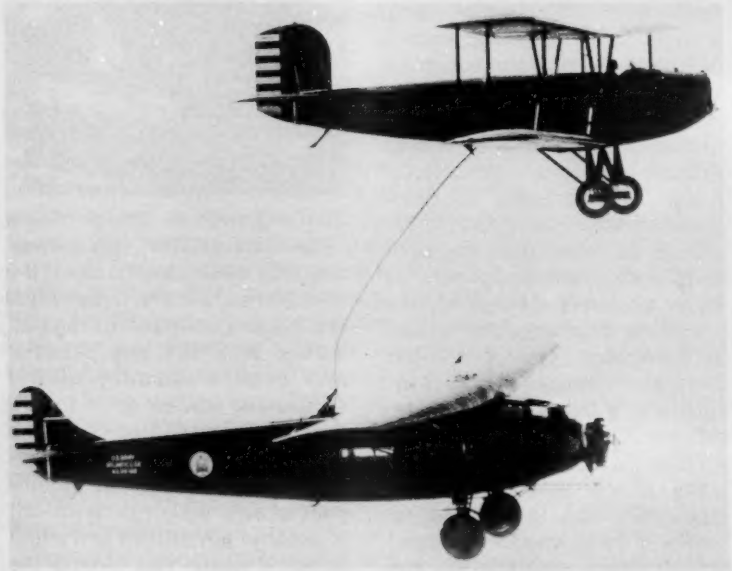
After taking off from the carrier *USS Hornet* along with a number of other attack aircraft units, VT-8 stumbled onto the Japanese fleet before the rest arrived, and as a result its badly outnumbered planes were hammered by the full force of the flotilla's antiaircraft guns and

Zero defenders. Ensign Gay's TBD-1 "Devastator" was eventually shot down, and he spent the next 30 hours in the ocean while the battle continued to rage all around him. His very personal and candid account of his unique sea survival episode, the events which lead up to it, his experiences during the rest of the war and later on as a commercial airline pilot is chock-full of colorful adventures and anecdotes. It keeps you turning the pages to find out what kind of predicament Gay will find himself in next.

(continued on next page)

A Few Great Captains
by DeWitt S. Copp

If you are inclined to think that conditions in today's Air Force are not all that rosy, reading this chronicle of the struggle that was waged to get the flying arm of the military off the ground will give you some new perspectives. In the decades between the World Wars, it wasn't uncommon for an officer to remain a captain or a major—if he was lucky enough to be promoted *that* far—for the rest of his career. Carl A. "Tooey" Spaatz, for example, at age 43, had been a major for 17 years. If you think grade ceilings are binding now, consider that in 1932 not one airman had enough time in service under the prevailing promotion criteria to rank as a colonel. Benjamin Foulois, who was the Chief of the Air Corps then, had to be temporarily jumped to brigadier general from his permanent rank of Lieutenant colonel because the position required it. And if you feel per diem rules are wacky and tough, imagine how you would have felt if you had been on the crew which made the historic endurance flight of the *Question Mark* in 1929. Flying a Fokker trimotor, they stayed aloft for nearly a week (150 continuous hours) without landing, taking on over 5,000 gallons of 72-octane avgas in 43 airborne refuelings. They even had their food delivered from the Douglas C-1 "tanker." At President Coolidge's direction they were awarded the Distinguished Flying Cross for their feat, but were quickly brought back to the realities of life in a bureaucracy when they submitted their travel vouchers. After considerable deliberation, the Army Finance Department ruled that they would have to pay for the cost of the government meals they had consumed while performing their headline making, record breaking flight!



Full of an endless supply of just such "tidbits" of Air Force nostalgia, *A Few Great Captains* is researched and written with an eye toward providing the whys behind much of what went on during the powerful struggles for operating funds and status that continually threatened to "deep six" the fledgling flying corps. It is filled with a combination of personal anecdotes from recollections, memoirs and official statements by the people who were involved up to their eyeballs, and these are dovetailed with historical background information from many sources in a very readable and engrossing narrative. Because it is so full of factual information, you can't expect to breeze through this book in a couple of evenings of light reading. But if you take the time, when you finish Mr. Copp's epic you will have a much greater appreciation for the trials, tragedies and triumphs that ensued during the protracted and often painful birth of American airpower.

Honorable Mention, 1980 MAC Flying Safety Writing Contest

The Beach at Xanadu

A trip to the place you've always dreamed of can turn into a nightmare.

by TSgt William R. Madden
702 MAS (Assoc) McGuire AFB, New Jersey

Daybreak on the hot cargo spot found a busy Loadmaster Hewitt rolling the last of a ten-pallet load into position. The K-loader backed away and Hewitt rechecked to make sure locks and lips were in and secured. The last four pallets held boxes of cannon ammunition stacked high under cargo nets and they were marked 2,000 pounds each.

"Hey Hewitt!"

He turned to face the scanner.

"You heard about what the women wear on the beach over there?"

"I've heard, I've heard," he smiled back. "I won't believe it 'till I see it, though."

"Well, I've *seen* it, and it's true all right."

Hewitt signed off the 127s and said good-bye to special handling.

"How about the night spots?" he asked the informed scanner.

"Out of this world. We'll take you to the Red Raven Inn. It overlooks the whole scene. Beautiful! Wait'll you see this place, and the prices are right, too!"

Hewitt felt the rush of cool air on his face as he buttoned up the cargo compartment. He hoped the sights beyond the petal doors would be a bit more pleasant, and the air a bit warmer, when next he opened them. Meanwhile, he was in for a long ride across the pond.

He took the load plan forward, checking the pallet labels as he went. Everything jibed, and he sat down on the outboard ACM seat to complete the Form F. Things were going smoothly. If he could keep up the pace and fleet service came early he could still enjoy some of that fresh air outside while everyone else did their scampering act.

Activity increased around the flight deck and he could hear fleet calling, "Load!" just as he autographed the Form F and handed it forward to the AC. He signed for the meals and jug and made a final walkaround, stowing straps and tightening cargo nets. He was satisfied with himself. It was harder to fly a mission like this with one loadmaster, but at least you had it all in one sock, he reflected. Much more order, even though it meant longer hours on the headset. You also had to doublecheck everything even more cautiously than usual. Ferreting out errors and "snowjobs" was part of the game.

He told the engineers where the Form F was and bounded down the crew entrance ladder. He was done. He walked over to the grass, away from the din of the APU, and enjoyed the awakening day. Fighters blasted down the active on a formation takeoff. Startled birds took flight and landed with ruffled feathers nearby. Hewitt caught the fragrance of flowers from somewhere and dreamed of Xanadu. He stared upward at the pink clouds spotting the sky. The sun would be rising just at takeoff: a very rare thing indeed

to be flying "human" hours. He had a good book, a lunch and fresh coffee. He really had it made. On top of all that, the ETA at Xanadu was perfect. They would be there in time for an afternoon at the beach with those lovelies, then a night of fun and a good sleep afterwards.

The scanner waved at him to come aboard and soon the optimistic loadmaster was stowing the gear pins for his flying mate. The word "secured" sprang from his mouth during the before-takeoff checklist. He heard the numbers reviewed once more up front and felt the release of brakes. Takeoff was to be at reduced EPR. The airplane accelerated, but at the liftoff point seemed reluctant to fly. Finally the wheels left the runway, but whatever smoothness there was in the takeoff ended completely at that point. The nose suddenly pitched up way too high and the stall warning "stick shaker" activated. Computed EPR settings became academic as the pilot shoved the throttles fully forward and called for gear up. Both pilot and copilot were on the yoke, holding it forward.

Hewitt was scared, and from the ashen faces of the other crewmembers, he knew he was not alone. He noted that the airplane was not climbing at all, but merely mushing along at a terribly nose-high attitude. They were heavy with fuel—130,000 pounds—and were carrying hot cargo. Hewitt could not recall the net explosive weight, but no matter, the fuel would transform the plane into a giant napalm bomb anyway if they went in.

Jump seat was on the horn declaring an emergency. The terrifying thing was that they still were not gaining altitude. The airplane remained close to the ground and Hewitt could feel a slight wallowing from left to right. Those wingtips must be dangerously close to touching the ground, he thought. There were no lights on the annunciator panel and no control problems. The engineers could find nothing wrong. At last a few more knots were gained, and a few more feet. They were now out

of imminent danger of dragging a wing, but were also out of ground effect. They passed over a highway, barely missing the power lines next to it, and were gratified to see flat lands stretching out ahead. Still struggling along at the same nose-high angle, with maximum power, the C-141 gained a few more precious feet.

"Load! Check our C.G. again. Hurry!" ordered the pilot.

Hewitt acknowledged and raced downstairs. He frantically reexamined the Form F, leaning like a sailor against the high deck angle. The Pratt & Whitneys whined under the strain of prolonged TRT and the airplane encountered bumps from flying at such a low altitude.

It *could* be a bad C.G., the loadmaster thought as he worked at the figures, but three times he came up with the same numbers as the original.

"I have 30.6 for takeoff, the same as before sir!"

"I don't buy it. This airplane is loaded aft, probably out of limits. Find out the problem and quick, load, please!"

The pilot's tone of urgency came through very clearly. Hewitt hurried around the cargo compartment of the overtaxed aircraft. The ammo pallets were marked 2,000 pounds each; he had noticed that earlier. Suddenly he realized that those weights could not possibly be right. Look at the Dash 2s—8,000 pounds! Hewitt raced to the troop door interphone and plugged in.

"Pilot, load! Wrong weights on the last four pallets! An error of 24,000 pounds. Send me some bodies quick so we can transfer some of it forward! I'm sorry about this sir!" As he spoke he looked out of the troop door window. They had gained quite a bit more altitude.

"Roger, load! Get busy. We may have to dump fuel later, we'll see."

The scanner, navigator—thank God they had one—and engineer threw themselves into the task of helping the loadmaster lug the boxes forward. For an hour they worked, scraping against side seats and pallets, bumping ankles and knees.

It took an hour of labor while the airplane maintained a shallow banked orbit and improved its climb rate. Stability was a long time coming, but it did return. The crewmembers finished shifting the cargo and returned to their positions. New numbers were furnished for landing. There would be no need for dumping fuel.

The airplane touched down smoothly. Support vehicles were out in force, and the parade followed the Starlifter all the way in to the hot spot.

Hewitt's day had ended. He remained in the ACM seat, trying to settle his jangled nerves. For the moment he was relieved just being physically safe. But he knew that later he would stand accused—that he was at fault, and that a Q-3 would certainly follow. He also felt the embarrassment of making a gross and dangerous error. Most of all, he was ashamed. Any loadmaster worth a dime should have spotted that labeling error!

Hewitt looked around the flight deck, noting the expressions of relief. Their moments of fear had passed, and joking had already started among the crewmembers. "Not since my C-124 days . . .," began the engineer.

With the chocks and pins in place, engines were shut down, and Hewitt recognized the voice of the standardization loadmaster even before he roared through the cockpit door. How he wished that he had taken the trouble to *doublecheck* everything!

ABOUT THE AUTHOR

TSgt Madden describes his reserve flying as "a big part of my life." He has been with the MAC Associate Reserve program for five years at McGuire AFB flying as a C-141 loadmaster. In civilian life, he pursues a variety of interests, including flying jobs for two small airports near his home in northern New Jersey—he holds a Commercial Pilot's certificate. "Mr. Madden" substitute teaches in the local schools, and is a graduate of Fairleight Dickinson University, Madison, New Jersey. His favorite hobbies are hunting and fishing. Sergeant Madden's Honorable Mention this year marks his third win.

KC-10
EXTEND

A new tanker-cargo aircraft will help strengthen the backbone of deter

Photos courtesy of McDonnell Douglas.

DA
DER

eterrence.

by Major Thomas Roberts
KC-10 Systems Program Office
Wright-Patterson AFB, Ohio

There is a need, a *strong* need in fact, for the U.S. to be able to project its forces rapidly to the farthest corners of the globe. The question arises, then, as to how we can move aircraft, troops and support equipment to a location on the other side of the world without having to rely on time-consuming intermediate stops. One way is to use an extender, the KC-10A Extender.

The KC-10A is the Air Force's newest aircraft and its testing and evaluation is underway. It is able to refuel both cargo and tactical aircraft, thereby extending their range to virtually any point on the globe. The aircraft has both boom and hose-drogue refueling systems permanently installed, which makes it fully compatible with Air Force, Navy and NATO aircraft.

Built by McDonnell Douglas under a contract awarded by the Air Force Acquisition Logistics Division at Wright-Patterson AFB, Ohio, the KC-10A advanced tanker-cargo aircraft (ATCA) is a military version of the intercontinental-range DC-10-30CF (convertible freighter) modified to provide aerial refueling capability.

The KC-10A is designed to retain its inherent maindeck cargo capability while supporting a deployment of fighters, support aircraft and airlifters from American bases to any spot in the world with increased aircraft efficiency over current KC-135 tanker aircraft.

Aerial refueling capability of the KC-10A nearly doubles the nonstop range of a fully loaded C-5A. The cargo capability of the Extender enables us to air refuel deploying fighter

squadrons over vast distances while simultaneously carrying their unit support personnel and equipment.

Considerable effort has been expended in designing the KC-10 to enhance the efficiency and safety of aerial refueling. With larger fuel manifolds and improved aerial refueling pumps, the Extender can accomplish a refueling faster than the KC-135. Improvements in the boom operator's station will significantly reduce "boomer" fatigue during aerial refueling operations. Other improvements have been made to heighten the accuracy of navigation and rendezvous maneuvers with receiver aircraft.

Aerial Refueling Boom

The KC-10A advanced aerial refueling boom (ARB) is 10 feet longer than the KC-135's and it provides a larger aerial refueling envelope. Tests have shown that the extra length is sufficient to markedly reduce the bow-wave effect produced by B-52 and C-5A receivers. The ARB is equipped with an independent disconnect system to augment the normal disconnect capability. When activated by the boom operator, a pneumatic device retracts the ramps on the side of the nozzle which engage the receiver toggles. The nozzle can then be withdrawn from the receptacle independent of the receiver's locked latching system. If all else fails and the probe is hopelessly stuck in the receiver's receptacle, a "weak-link" fuse has been designed into the nozzle. At a pre-set load condition, the nozzle will break away from the boom, limiting damage.

A regulation system monitors fuel flow and will increase or decrease pumping volume, maintaining a constant 50 psi. In this way the KC-10A can sustain high aerial refueling flow rates, but avoid the danger of overpressurizing the receiver's fuel system.

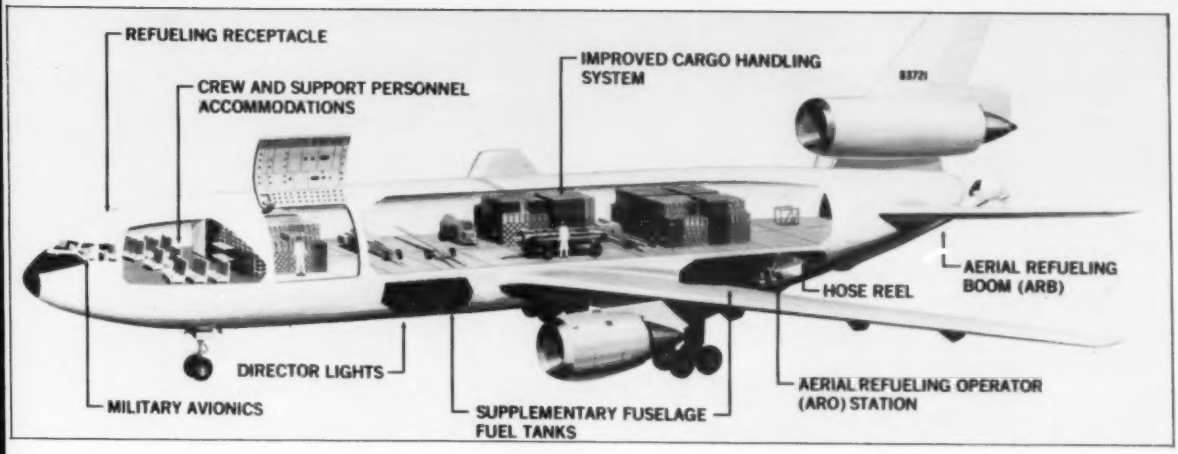
Aerial Refueling Boom Flight Control System

The ARB position is controlled by twin rudders and an elevator. Control surfaces are moved by dual-tandem hydraulic actuators triggered by the digital fly-by-wire control. This system makes it possible to include an "Auto-Pilot" called the Automatic Load Alleviation System (ALAS). Once the boom is coupled to the receiver, stresses are measured in the nozzle and the boom flies automatically in the optimum position for minimum nozzle binding.

Another improvement on previous automatic disconnect systems is included in the digital fly-by-wire control system. Rather than initiate a disconnect at a predetermined limit, as with the KC-135, the automatic disconnect system observes the receiver rates of movement and anticipates the approach of an operating limit. The system can initiate and achieve a disconnect prior to exceeding the limit, thus precluding binding the nozzle anywhere within the three-dimensional refueling envelope. This portion of the control system also operates the pilot director lights. It warns the receiver pilot of an approaching limit, even if he is far away from the limit but approaching at an unacceptably high rate.

The Aerial Refueling Operator's Station

Both the boom and the hose and drogue are controlled from the Aerial Refueling Operator's (ARO) station located in the aft section below the cargo deck. Several features improve the ARO's environment over that of the KC-135. First, the operator



Above: *General configuration of USAF's advanced tanker-cargo aircraft, the KC-10A.*

Left: *USAF KC-135 refuels a McDonnell Douglas KC-10A in flight over the Sierra Nevada Range in California.*

Right: *The KC-10 extends America's global reach.*

sits upright, and guides the boom with two sensitive, low force, wrist controllers. Additionally, the station is completely enclosed and has its own environmental control system ducting with sufficient capacity to keep the compartment comfortable. And finally, dual controls permit an ARO instructor to take over from a student in emergency situations.

Avionics

Aerial refueling rendezvous, formation, and mid-air collision avoidance are important and demanding considerations. The KC-10A has several features to aid rendezvous and formation flying and avoid midair collision.

First, it can perform as a flying tacan station. Receivers can use their tacan systems to obtain bearing and distance to their assigned tankers. Once they're within visual range, the KC-10A is well lighted and has red and white anticollision and rendezvous lights which can flash in one of three selectable combinations. Receivers will find it much easier to make positive visual identification easier.

Second, when a rendezvous has been completed, the KC-10's lights can be dimmed to any desired level to lessen their impact on the receiver pilot's night vision. Electroluminescent strips on the body, tail and wingtips assist receivers in close formation flying. The tail logo light also assists other tankers in maintaining cell formation.

The KC-10A Extender will provide more effective and safer aerial refueling to both receptacle and probe equipped receivers. The first Extender rolled off the assembly line in April 1980 and is currently undergoing testing and evaluation at the Douglas facilities in Yuma, Arizona. Delivery to the Air Force is scheduled early this year. Home base for the KC-10A will be Barksdale AFB, Louisiana, where pilots from both active duty and Reserve Strategic Air Command units will fly the new tankers. A fleet of 26 Extenders is currently planned, but the doors have been left open for increasing the fleet size to as many as 60 under the current contract.

Flying Against the Wind

by Capt Bill Sadler
451 FTS (ATC)
Mather AFB, California

Above some endless ocean
  Ten-thousand miles from home,
Listening to the radios,
  Above the engines' drone.
Sitting on a cushion
  That has slowly turned to stone,
And thinking thoughts I only think,
  When I'm weary to the bone.
  "Here I am, back in the air again,
  One more time, back on the road.
  Dragging my bags around the world,
  I fly for MAC, I haul the load."

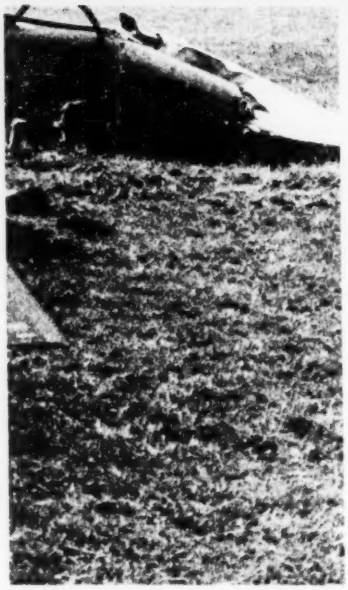
Breakfast at the snack bar
  Seems like years ago,
Inch the throttles up a bit,
  Why do we fly so slow?
Check the E-T-A again,
  I hate to 'cause I know
We're not even half way there,
  Six hours more to go.
  "Here I am, up in the air again,
  Six miles high, I miss the ground.
  Seems the sky will never end,
  So much blue a man could drown."

Spent last night in the BOQ,
Feeling half past dead,
With the rumble of the engines,
Still running through my head.
I think about my lady,
As I make my way to bed,
Remembering how she kissed me,
And the last thing that she said,
"Must you go, back on the road again?
Seems as if you just got home,
Life's so empty when you're gone,
How I hate it here alone."

Get on the horn to ACP,
Tell them when we're due.
"You'll have to turn real quick," they say,
"'cause you're our only crew."
Then they add, "There's a war on, men,"
As if nobody knew.
How much can my body take?
How I wish this trip were through.
"Here I am, back in the air again,
Tell me please, when will it ever end,
Two weeks gone, singing Seger's Song,
And always flying against the wind."

I thought I saw the tacan twitch,
The needle's coming 'round.
Hurry, call approach control,
We'll soon be on the ground.
The checklist's done, the flaps are set,
The gear is coming down.
We're in the flare, the tires go squeak,
I've waited for that sound.
"Here I am, back on the ground again.
All my pain begins to pale,
When I see the smiling crowd
Of weary grunts receive their mail."

"Here I am, back in the air again.
I don't really mind the road.
Hauling "trash" is what we do best,
Somewhere someone needs this load."



Tails of Woe

Although this article was written for Army aviators and involves the OH-58 light helicopter which is more susceptible to loss of tail rotor effectiveness than our rescue helos, it contains valuable food for thought no matter what type rotary wing you happen to fly. —Ed.

Not too many years ago—before the advent of the recovery room—the expression, "The operation was a success . . . but the patient died," was common, and unfortunately, true. All too often the surgeon's best efforts were negated by some complication that developed while the patient was left unattended. Today, we could properly coin a somewhat similar saying in aviation that would apply to helicopter operations—"The aircraft had no mechanical deficiencies, but it crashed anyway."

There, again, the cause can be properly attributed to some form of inattention; yet this type of situation is not an isolated one. Several Army helicopter pilots have been involved in remarkably similar accidents in which loss of tail rotor control preceded each mishap. Further, in each instance, investigators found no evidence of maintenance error or materiel failure. Nor did they find any single aircraft limitation such as gross weight, CG, altitude, airspeed, etc., that had been exceeded. Nevertheless, in each instance, the tail rotor failed to respond to pedal input, and the resulting loss of control led to an accident.

Let's look at one of these mishaps through the eyes of the pilot. "At approximately 1030 I performed the pre-takeoff check on my OH-58. All instruments were normal and I made my takeoff southwest into the wind. The object of the mission was to make radio contact, visually spot and then observe the progress of some ground troops.

"I made a left-hand turn over the objective area then flew several thousand meters north and made a righthand turn. I traveled about 1,000 meters east and initiated another righthand turn to a southerly direction to keep the troops in sight. The aircraft fuselage, however, continued to turn right. I applied left cyclic and removed right pedal input in order to straighten the

aircraft out on a southerly heading. It was at this time that the aircraft first failed to respond to control inputs. As I entered the turn, all instruments were normal and airspeed was approximately 50 knots. I tried to pull out of the turn but the nose of the aircraft continued turning right and was crabbing badly. It would not respond to left pedal pressure. While it continued to turn, I could feel the tail lift up as it passed through a southerly direction (downwind). The aircraft began to rotate to the right with increasing velocity. The rotation soon became violent and completely uncontrollable and the helicopter felt like it would come apart. During one of the rotations, when it became apparent that a normal recovery would not be possible, I split the needles and reduced collective to full down. The aircraft continued to rotate at least 270 degrees to the right. I was unable to change the attitude in order to choose the point of impact. I realized I would hit the trees. I leveled the aircraft and, just above the trees, applied all available collective pitch to slow my rate of descent. As I fell through the first big branches, the nose of the aircraft pitched down after the tail made initial contact."

The aircraft fell about 15 feet, struck the ground, and came to rest in a nose-low position, with the tail boom in the trees at a 45-degree angle. The pilot and passengers evacuated the aircraft with minor abrasions. There was no fire.

The aircraft was in excellent mechanical shape and no maintenance problems or materiel failure contributed to this mishap. As a matter of fact, accident investigators were in total agreement that "All aspects of the flight were found to be within limitations as prescribed by the operator's manual, with the exception of height/velocity (dead man's curve) for safe autorotation." So the question remains, "What caused loss of tail rotor control in this mishap?"

To understand why, it's first necessary to realize that the tail rotor is susceptible to some aerodynamic limitations just like any other lift-producing airfoil. Under certain conditions of power requirements, pitch angle and relative airflow, it can lose effectiveness. A situation where a strong quartering tailwind requires the pilot to increase tail rotor pitch to maintain desired ground track can contribute to loss of tail rotor effectiveness.

If our aircraft was already near its maximum permissible gross weight for the prevailing density altitude, flight at low airspeed would necessitate near maximum power. Banking the aircraft would then create a demand for even more power if airspeed and altitude were to remain constant. Yet, the engine can produce only a certain amount of power and if too much demand is placed on it, something has to give—loss of rotor rpm—loss of altitude, airspeed, and probable loss of tail rotor effectiveness.

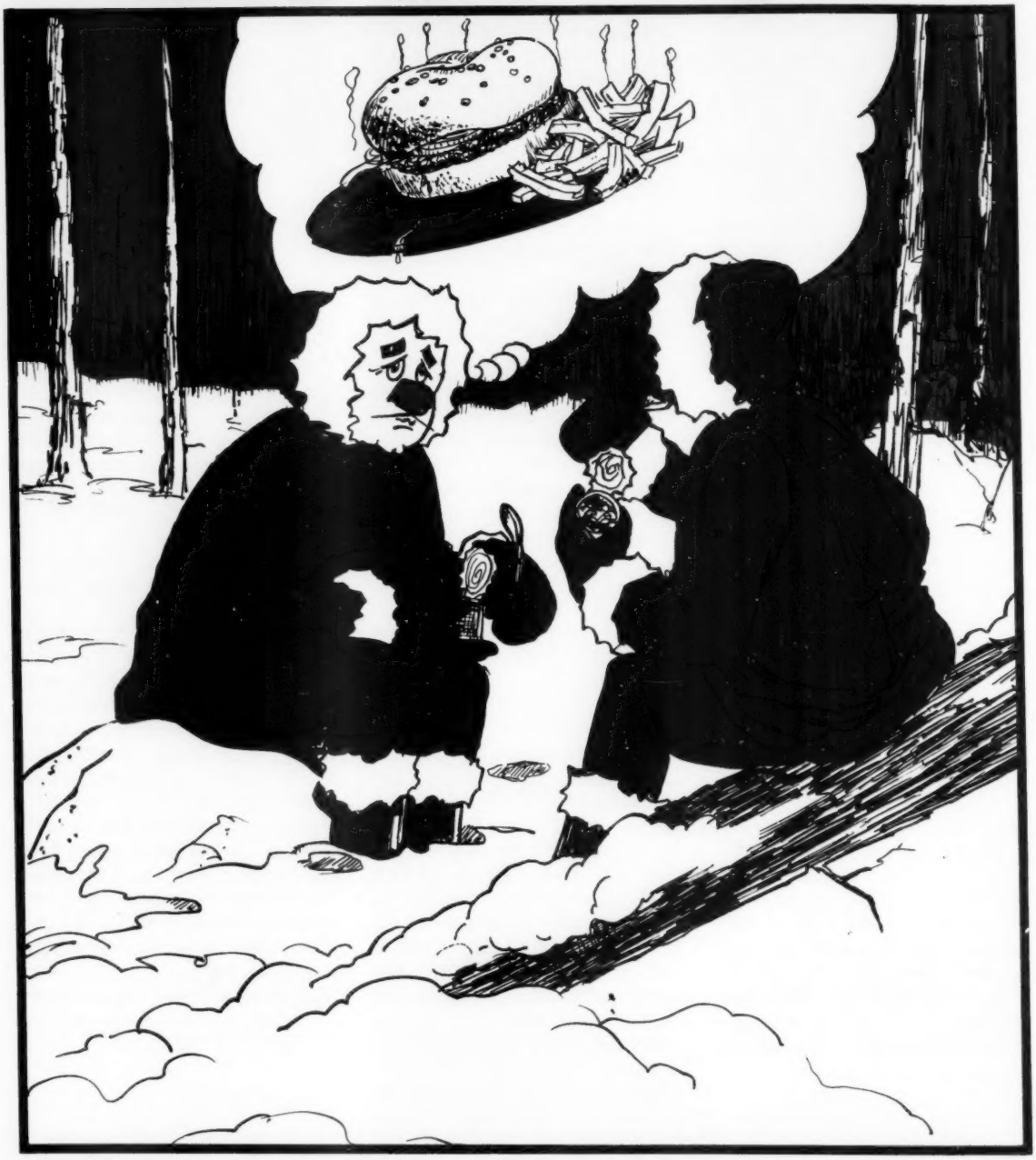
Relating this information to the numerous (OH-58) helicopter mishaps that have resulted from loss of tail rotor effectiveness, we can readily see that even though no single aircraft limitation may be exceeded, control problems can occur under certain conditions of flight.

Prevention of mishaps from these insidious causes depends in great measure upon the pilot's awareness of the conditions which can contribute to loss of tail rotor effectiveness. Getting the word out during premission briefings can make certain the pilot is aware of the conditions during an assigned mission so that the flight crew may be forearmed. In addition, supervisors can insure no greater demands are placed on man and machine than those actually required to complete a given mission. If low-level flight is not essential to accomplish the objective, then an altitude that will keep the aircraft within the height/velocity envelope is desirable. Similarly, pilots operating at slow airspeed in confined areas should be extra wary.

The pilot needs to remain constantly aware of the prevailing conditions during any given phase of flight. Flying the aircraft by attitude rather than by apparent ground speed, applying control inputs smoothly, and awareness of the approximate wind velocity and its direction all should improve the margin of safety. Aviators who keep these factors in mind are far more likely to avoid self induced tail rotor control problems.

—Adapted from *U.S. Army Aviation Digest*

C.R. TERROR



A wiser C.R. winds up his winter wonderland wanderings. (second in a two-part series)

Last month Major Terror and Sammy found themselves hand-picked for a no-notice winter survival test as part of an exercise. Scheduled to be dropped off in the great emptiness of the north country with some survival supplies and a radio, their mission was to E-and-E their way to an Army outpost without being picked up by the "bad guys." We join the Arctic Fox and his long-suffering sidekick aboard an Army UH-1 on their way to the "training" area.

During the hour-long helicopter ride out to the drop off point, C.R. and Sammy busied themselves taking inventory of the supplies each had been given. "What's this stuff called pemmican?" asked Sam, slowly turning the small tin in his hand.

"Sam," C.R. said firmly. "If you value your life don't even mention that word out loud. I once had a distasteful experience with that stuff and ever since then I get a violent gastro-intestinal reaction if I come within ten feet of it." C.R.'s face contorted into obvious revulsion as his mind regurgitated memories of a young 2nd Lt Terror concocting an unforgettable "stew" during initial aircrew survival training.

"Hate to tell you this, boss," Sam confessed, "but that's the only kind of food there is in these packs."

"Just our luck, we were grabbed for this cold soaking before I could get to the snack bar. A grease burger and fries would sure taste good about now," envisioned the Hungry Honcho.

Soon the Army helo made an approach to a snow covered valley with patches of evergreens dotting the edges and hills rising gently on either side. The rotor wash stirred up an icy whirlwind as the chopper touched down on the snow. The two "E-and-E-ers" jumped out with their packs and the helicopter immediately ascended into the cold, clear air. It was soon out of sight, leaving the two Terrorific Trekkers alone in the immense silence of the Alaskan wilderness. They stood there for several minutes straining to hear some familiar sound. But there was nothing except the unreal quiet of the snow field stretching to the far side of the valley where it merged with the foothills of the mountains rising majestically to the north. Almost reluctant to shatter the great stillness, C.R. tentatively voiced his reaction. "I haven't heard this much silence since I had a double-engine flameout in a T-39." Suddenly the radio came alive with a crackle and a squawk, "Blue Nose, this is Ice Breaker, how do you read, over?"

Extricating the brick from inside his parka, C.R. brought it up to his already reddening face. "Ice Breaker, Blue Nose here, you're coming in loud and clear."

"Roger, Blue Nose, be advised we show about two-and-a-half hours of light remaining and the latest weather report indicates things might get a little nasty out tonight. The wind has picked up to around 16 knots. That makes the wind chill minus 25 degrees Fahrenheit. Suggest you start finding shelter no later than one hour from now, over."

"Okay, Ice Breaker, we'll check in at the nearest Holiday Inn and wait out the weather in the lounge," C.R. replied icily.

"Roger, Blue Nose, keep up the good spirits and give us a radio check one hour from now. Ice Breaker, clear."

"Wonder what they mean by 'a little nasty'?" Sam questioned aloud.

"Well, by the looks of those dark grey clouds rolling in over the mountains there, I've got a pretty good idea they don't mean a tropical heat wave," quipped the Abdominal Aeronaut with frost already forming on the ragged, furry rim of his turned down parka hood. "Let's take a gander at that map," C.R. motioned to long shivering Sam. In a vain attempt to orient the chart to magnetic north, the Arctic Magellan turned it first one way and another, then spent five minutes chasing it down after a gust of wind blew it out of his hands. Finally Sam uncrumpled it long enough to notice that not only was the starting point marked but also the compass heading to the destination. "Right you are, Sam," bluffed the Freezing Four-flusher, "Just testing your contour navigation acumen. That was 240 degrees, right m'lad?" With their course clearly marked in red on the map and C.R. taking frequent compass sightings, the two Winter Wayfarers continued their trek at as rapid a pace as the Bandy-Legged Leader could manage. Marching along, C.R. recounted his various calamitous connections with Captain Spurious, while Sam walked a half step behind, thumbing through the arctic survival manual.

"That guy's main function in life must be to make me miserable," C.R. wheezed. "And I never did anything to cause him to hound me like he does." He paused to reflect on certain flights when Spurious served as his copilot—flights not that unusual or out of the Terrorific norm. No, he decided, Spurious was a Jonah, a millstone,

hoodoo and jinx all rolled into one. C.R.'s revolting reverie was interrupted by his conscientious cohort.

"Hey, boss, your nose is cherry red and it says here that could be the first sign of frostbite."

"Nonsense," returned C.R., "many have had red noses without necessarily being afflicted with frostbite—W.C. Fields, Rudolf the red-nosed Reindeer, Ronald McDonald, to name just a few."

"All the same, I feel like we ought to start thinking about a shelter to get out of this wind," pressed the copilot.

"As far as I'm concerned," sniffled the Sage of the Tundra, "none of those cold weather shelters would meet my criteria for acceptable accommodations. First, they don't have a wet bar. Second, no heated water bed or even a cot; and third, none of 'em keep out the cold night air. Anything that doesn't provide those basic amenities simply will not do. And besides, going without a hot meal in a cold climate is like passing up fresh orange juice in Florida."

Never the one to be deterred too easily, Sam continued hopefully. "Here's a lean-to shelter that looks pretty easy to build, or maybe we could try an igloo."

"An igloo!" scoffed the Huffing Honcho as he pulled his boot up out of an unexpectedly deep snow drift. "That would approximate sleeping in a frozen food locker—no thanks."

"Well, boss, what did *you* have in mind?" queried Sam, running out of good ideas and hoping his aircraft commander had something clever up his sleeve all along.

"Look at this way, Sam m'boy. The sooner we reach that outpost the sooner we can get out of this cold wind and enjoy a warm meal. And besides," rationalized the Rotund One, "haven't you ever heard of hypothermia? If we stop after we've worked up a sweat walking through this stuff, we will freeze for sure. So we oughta just make up our minds to keep on truckin' 'till we get there," C.R. asserted with an air of finality.

The two walked on across the rolling field of snow and into the fading afternoon light with the wind rising, the temperature dropping, and C.R.'s glowing red nose leading the way.

Stopping on a little knoll after giving Ice Breaker another radio check, C.R. suddenly turned his head first one way and then another like a birddog trying to catch a scent.

"What's up?" asked Sam softly so as not to break C.R.'s concentration.

"I hear a strange noise like a chain saw, listen." Sam pulled back the furry hood, exposing his ears, "Yes, I hear it, and it's getting louder, too," he confirmed. Both pilots began looking in all quadrants trying to pin down where the mysterious buzzing was coming from. Finally, the Eagle Eyed Aeronaut spotted a dark speck

moving their way from the far side of the snow field. "There it is Sam!" C.R. pointed. "Can you make it out?"

Sam squinted at the object which was getting closer by the second. "Why, it's a snowmobile!" Sam blurted. "What's a snowmobile doing way out here in the middle of nowheresville?"

"Who cares," C.R. said with a curious smile, looking like the fox spotting the old grey goose, "Let's get his attention." With that he quickly whipped out a signal flare and yanked the cord, releasing a billowing bright orange cloud of smoke visible for miles against the white background.

Pulling up alongside the still mesmerized pair, a fur covered character throttled down his mechanical mount, turned off the ignition and slowly climbed off. C.R. and Sam approached with outstretched hands. Pulling back the hood of his parka, the stranger uncovered a smiling face behind a scraggly beard. "You sure know how to get somebody's attention," he said and introduced himself as Juneau Jack Aleknagik. "Just call me Jack," he said. "But what are you two doing way out here when it looks like it's going to blow up a storm tonight?"

"Actually," C.R. admitted, "we're in the Air Force and we're trying to get to the Army camp about four or five miles that-a-way." As C.R. explained, he eyed the roomy sled attached to the rear of the specially built snowmobile.

"Oh yeah, I know the place. They're flying Hueys out of there during the war games," Juneau Jack said.

"Sounds like you know a good deal about airmachines," C.R. probed.

"I should," replied Jack brightly, "I spent two tours in SEA flying UH-1s."

"A fellow pilot," interjected Sam.

"It's a small world, indeed," added C.R. Then, coming straight to the point, he propositioned, "Say, Jack, perhaps we could strike a bargain. Me and my copilot here could sure use a ride to that Army camp and we'd be willing to make it worth your while."

"Well, it *is* quite a bit out of my way," Aleknagik said thoughtfully, "but you two look like you need help--especially you, major. You'd better cover up that nose before you get frostbite. It's lit up like an anti-collision light." Then he climbed back into the driver's seat of the extra-large snowmobile. "I suppose my uncle can wait an extra hour or two for this load," he concluded, waving the two aviators aboard.

Even with the extra baggage, the souped-up snowmobile careened across the darkening fields with blinding speed. The two icy aeronauts huddled against the cargo holding on for dear life as the vehicle bounced and jolted along in the howling wind and blowing snow. Finally, Juneau Jack yelled back to his passengers. "The camp's just on the other side of this little hill." With that, C.R.'s eyes brightened as another idea popped into his mind.

"We'll get off here, Jack," he yelled to the driver, who immediately came to a halt just below the crest of the hill.

"Well, at least you two can get in out of this storm before it gets completely dark," offered the roughrider as C.R. and Sam dismounted.

"What about the taxi fare?" C.R. offered.

"Don't get many riders in my line of work," Jack explained. "It was great just to have someone along for a spell. So long Major, Captain." And with a nod of his head he turned the snowmobile toward the south and moved off.

"Wonder why he wouldn't take anything for the ride. It was sure worth it," pondered C.R. as they watched the noisy vehicle pick up speed. Suddenly, both noticed the sign hung on the back of the sled with bright red letters spelling out "DANGER HIGH EXPLOSIVES." They stood there for some time just looking at each other with strange half-grins on their faces. Finally, Sam broke the silence.

"What are we going to tell the monitors? They'll never believe we walked all that way this afternoon," the concerned copilot said nervously.

"Oh, we'll just tell 'em we jogged. Besides, Sam, there's no place for silly rules and games when it's a matter of survival—especially our own." He turned to his companion with a broad smile spreading beneath his now purple proboscis. "Well, I guess we'll show them who the super survivors and most adroit evaders are, eh, mon ami?"

As they walked into the glare of the perimeter lights, Sam turned to C.R. "I'm not too sure we came out all that well, skipper."

"How so?" asked the Triumphant Major, already sniffing the aroma of hot coffee.

"Between your discolored nose and my numb toes, I think we both may have a touch of frostbite."

Awakening to the possible ramifications of his overexposure, C.R. executed one of his amazing 180° reversals of position, cajoled his shivering side kick, "Well, let's hurry and have the medics check us out. No sense in taking any chances with such a serious hazard as the effects of cold weather, eh Sam?"

QUICK STOPPERS

Notable Quote

If you think OJT is a pain, try ignorance.

—MSgt Clyde H. Beal
130 TAG, WVANG

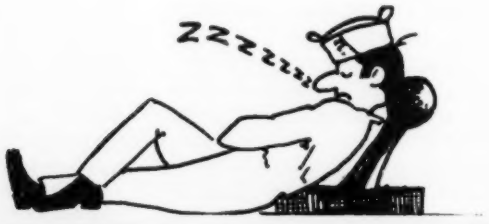
Asleep At The Switch

Most of us wouldn't stand for anybody purposely making hard landings or overboosting engines, because these practices would be unwarranted abuses of our flying machines. Sometimes just doing nothing about a system malfunction warning can abuse an aircraft with equally damaging results, as this C-5 mishap illustrates.

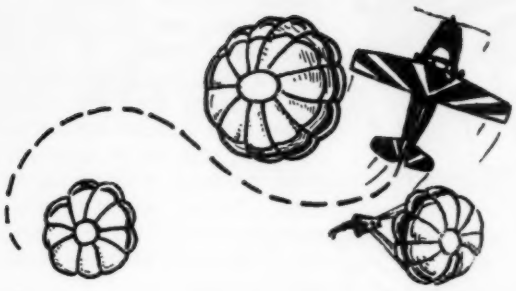
About seven hours after takeoff, the crew advanced the throttles to climb from FL 370 to FL 390. About 30 seconds later, the MADAR system told them the number one engine had abnormal fan vibrations. The crew did nothing to troubleshoot the problem—they didn't even change the engine rpm. About three minutes later the "black boxes" again informed them that all was not well with number one, and it was vibrating out of limits. Still the crew continued to do nothing.

Out in the number one engine pod, however, lots of things were happening. A second stage fan blade had failed near the midspan shroud. Part of the shroud broke off and damaged several other fan blades. At least one loose part exited the engine through the second stage fan stator case and outer thrust reverser cowl panel.

Ignorant of the damage, and apparently unwilling to troubleshoot the system, the crew continued to use the engine at climb power for another twenty minutes until a descent was started. Fortunately, their "sins of omission" didn't result in the engine vibrating itself into a catastrophic disintegration. Systems warnings should be taken seriously, because it's usually a lot safer, and less costly, to troubleshoot a false indication than to ignore a real malfunction.



Parachutist Problem



An aero club pilot did four successful touch-and-goes and was downwind for a fifth when he saw parachutists descending in close proximity. He made a couple of quick jinks to avoid the unannounced sky divers and continued his approach while he watched their graceful descent. His plane's glide and landing were also graceful, but ground to an abrupt halt on the runway because the distracted flyer forgot to put the landing gear down in his preoccupation with parachutists.

Off the Beaten Track

Having computers to do some of the work normally done by humans can be a wonderful thing, but it can also be fraught with peril when the people-to-computer interface is faulty. A difference between the filed flight plan message and the flight plan analysis (FPA) in a commercial aircrew's folder, for example, caused one airline flight to deviate nearly 120 miles south of the filed overwater route. From the start, it was a Murphyesque comedy of errors. Because of transportation problems, the crew arrived late to fly, and their flight folder was even later in showing up. Hurrying because they were late, the captain and first officer looked over the paperwork, but failed to notice a latitude discrepancy for their 150W position. When the captain and copilot got to the aircraft, the paperwork was divided up hastily, and the third officer never got a chance to make the routine crosschecks between the departure message and the flight plan. The crew was cleared "via flight plan route," and everything went smoothly until they reached 33N-150W. Soon after they relayed their flight info there, Honolulu called back and questioned the latitude coordinate. His suspicions aroused, the third officer dug out the flight plan message and found it specified 35N-150W! A short time later, Honolulu cleared the airliner direct to their next position and the trip was completed without incident. An investigation afterward revealed that although the flight was planned for the FPA route, a transmission or clerical error in the flight plan message indicated the 150W waypoint was 35N instead of 33N. An eagle-eyed comparison before takeoff could have prevented a lot of confusion, as well as the possibility of an inadvertent intrusion into somebody else's airspace.

–Adapted from *Crosscheck*

Broken Tail

Maintenance folks decided to move a transport into the hangar and out of some foul weather to do their work. With the twin-engine aircraft under tow, the supervisor called for brakes as the tug and plane passed through the hangar door. The tractor driver applied the binders with no result. Immediately the boss screamed for brakes again and this time the driver stomped the pedal to the floor, stopping the tug dead in its tracks. However, the plane's momentum compressed the nose gear strut, causing the empennage to rise and the vertical stabilizer to crush itself against the hanger door track.

Leaks and spills of irritating and poisonous substances aboard MAC aircraft continue with troublesome frequency. Many of these mishaps result from a chain of oversights, ignorance and unfounded assumptions. A recent leak of an extremely environmentally toxic chemical, polychlorinated biphenyl (PCB), illustrates how such mishaps can happen. PCB is commonly used in large electrical transformers and *looks like* lubricating oil.

Before these particular transformers were placed aboard a MAC C-130, they had gone through six months of trials and tribulations. They were first refused for shipment aboard a boat in December because they were improperly packed. Next they were damaged when the truck returning them from the dock slipped off an icy road, dumping them into a snowy ditch.The next spring they were then enveloped in plastic and placed on a 463-L pallet. Two weeks before the Herk arrived, a supply technician noticed that one of the transformers had leaked some PCB into the plastic envelope. The new mess was cleaned up and vents at the top of the transformers were opened to relieve pressure from the supposed thermal expansion. Six months after they had been refused passage aboard a ship, the troublesome transformers were loaded aboard a MAC aircraft as "general cargo." The crew was not told the transformers were damaged or had ever leaked. Although they were briefed that they contained PCB, the crew was unaware of its toxic nature. Since no hazardous cargo tags were present, they assumed it was harmless.

During climbout, the C-130's pressurization system malfunctioned, and the cabin altitude rose rapidly to around 10,000 feet. The flight engineer was able to coax the system back into proper operation, however, and the inside altitude soon returned to an acceptable level. During these pressure changes some PCB was forced out of the vents at the top of the transformers.

After landing, the plane was downloaded and a puddle of "oil" on the cargo floor was cleaned up by the crew chief. Because the aerial port people didn't know the transformers were leaking PCB, they contaminated their equipment and hangar with the chemical. When people who worked with the load reported having headaches, civil engineers were called in and their electrician promptly identified the oily substance as PCB.

Meanwhile, the crew chief who had cleaned up the Herk hadn't cleaned the PCB completely off his hands and ingested a little of it when he ate lunch. He and two friends who shared parts of his repast are now under surveillance by medical personnel for signs of systemic poisoning. Everybody else who came in contact with the PCB had to turn in any contaminated clothing and be checked by the hospital before returning to duty.

The entire series of mishaps and miscalculations could have been prevented if any one of several cargo handlers had recognized the transformers as hazardous cargo containing a highly poisonous substance, briefed the aircrew, and made sure a DD Form 1387-2 was completed.

AFTER DEADLINES

MAC FLIGHT MISHAP RATE AT EIGHT-YEAR LOW. Preliminary calculations put MAC's 1980 Class A flight mishap rate at 0.57 per 100,000 flying hours and our Class B flight mishap rate at 0.71. This is the lowest Class-A rate since 1972 when the major mishap rate was 0.53. A hearty "good show" to all the aircrew and support personnel whose safety-minded performance made this record possible.

NEW CINCMAC SPECIAL ASSISTANT ON AIRCREW MATTERS is Captain Richard Cole from Dover AFB, Delaware. Captain Cole's job is to keep General Huyser advised of current concerns and perceptions of MAC aircrews. He'll spend a lot of his time visiting units and talking to MAC flyers at the working level, but you may also contact him anytime by calling autovon 638-2041.

C-5 SQUADRON GETS ITS FIRST NAVIGATOR OPS OFFICER. Lt Col Charles Dumas recently took over as operations officer for the 3d Military Airlift Squadron, Dover AFB, Delaware. Lt Col Dumas is the first navigator to be assigned as a C-5 squadron ops officer. Other navigators are currently serving in important management and command positions throughout MAC in both operations and support functions.

APPLICATIONS ARE STILL BEING ACCEPTED FOR EDITORS for the world's finest flying safety magazine, *The MAC Flyer*. We're looking for two MAC officer crewmembers to join our staff between March and August 1981. Recent flying experience in MAC fixed or rotary-wing aircraft is a must. A background in safety, journalism or communication is a plus. If you're interested in this outstanding opportunity, please call autovon 638-3534, or write HQ MAC/IGFE, Scott AFB, IL 62225, for more information.

U.S. SENATOR TED STEVENS PRAISED ALASKAN AIR GUARD UNITS for their part in rescuing victims of the sinking cruise ship *Prinsendam*. He also joined many fellow Alaskans in recognizing the efforts of the men and women of the 144th Tactical Airlift Squadron and the 176th Aerial Port Flight for packing and transporting clothing, cots and blankets from Anchorage to Valdez, Alaska, where most of the 530 survivors were taken initially. The units are part of the 146 TAW (ANG) and are MAC-gained Air Reserve Forces operating under 22d Air Force. The 71st Aerospace Rescue and Recovery Squadron, Elmendorf AFB, Alaska, was credited with 74 "saves" in the same operation.

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Touch 'n Go

We're just about on top, sir. You wanna request higher?